DWR ETAF STUDY OVERVIEW

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Overview

2014 and the first half of 2015 were some of the driest periods on record in the state. California Assembly Bill 1881 resulted in California enacting a law on January 1, 2010 reducing the Evapotranspiration Adjustment Factor (ETAF) from .8 to .7 in new landscapes over 2,500 square feet, mandating enhanced water conserving measures in urban landscapes. In December, 2015 a revised ETAF of .55 ETo for new landscapes over 500 square feet replaces the current .7 ETo necessitating even greater conservation. The .55 MAWA* is a 21.4% reduction from the current .7 MAWA. It is important to note that recreational turf and food crops will remain exempt.

The goal of our California Department of Water Resources (DWR) project is to measure water use at 30 large urban landscapes in six climate zones that include a variety of ornamental plants with varying water use rates growing under a wide mixture of plant densities and microclimates. A further goal is to work with site managers to improve irrigation system distribution uniformity (DU) and overall irrigation efficiency at each site. The six climate zones include: South Coast, Los Angeles Basin, Inland Empire, Desert, Central Coast, and Central Valley.

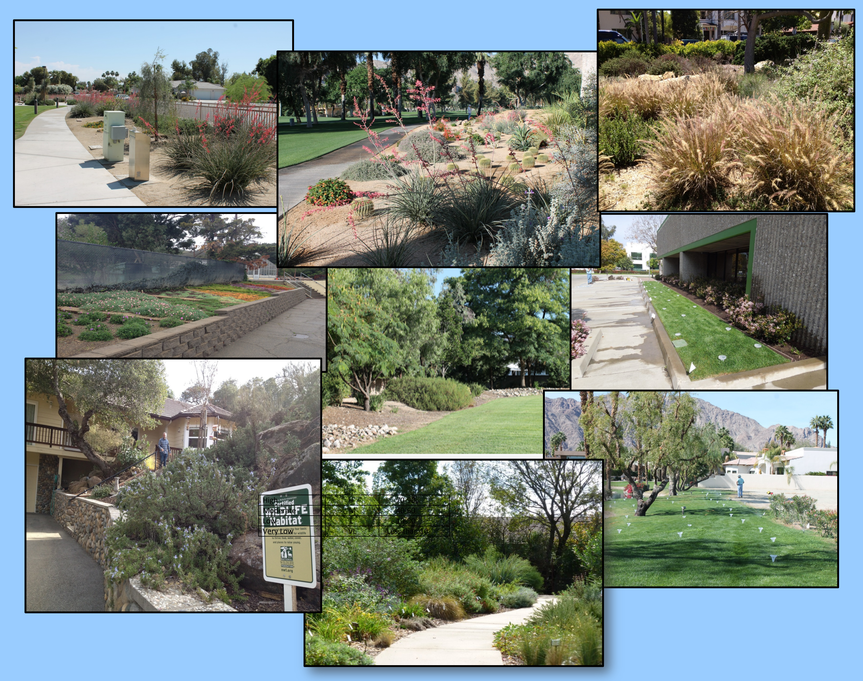
***<u>Maximum Applied Water Allowance (gal/yr)</u>**
<u>MAWA = ETo × 0.7 × LA × 0.62:</u>

ETo = Reference Evapotranspiration (inches/year)
0.7 = ET Adjustment Factor
LA = Landscaped Area (square feet)
0.62 = Conversion factor (to gallons)

<u>Example of MAWA (Riverside, California):</u>

Hypothetical Landscape Area = 50,000 sq ft
MAWA = ETo × 0.7 × LA × 0.62
MAWA = 51.1 × 0.7 × 50,000 × 0.62
MAWA = 1,108,870 gallons/year

Our sincere appreciation is extended to our public and private cooperators.



PLANT LIST

City of Lakewood (Reclaimed Restoration Area)

Plant Name	Plant Type	Climate Region	Water Use Category
1) Purple Sage *Salvia leucophylia*	Shrub	4	Low
2) Western Redbud *Cercis occidentalis*	Tree	4	Low
3) Lemonade Berry *Rhus integrifolia*	Shrub	4	Low
4) California Lilac *Ceanothus* spp.	Shrub	4	Low
5) Matilija Poppy *Romneya coulteri*	Shrub	4	Very Low
6) Toyon *Heteromeles arbutifolia*	Shrub	4	Low
7) Butterfly Bush *Buddleja davidii*	Shrub	4	Moderate
8) Mexican Lobelia *Lobelia laxiflora*	Shrub	4	Low
9) Black Willow *Salix* spp.	Tree	4	High
10) Coast Sunflower *Encelia californica*	Shrub	4	Low
11) Elderberry *Sambucus* spp.	Tree	4	Low

PLANT LIST

City of Palm Desert

Plant Name	Plant Type	Climate Region	Water Use Category
1) Aloe *Aloe* spp.	Shrub	6	Low
2) Trailing Lantana *Lantana montevidensis*	Shrub	6	Moderate
3) Dwarf Poinciana *Caesalpinia pulcherrima*	Shrub	6	Low
4) Red Yucca *Hesperaloe parviflora*	Shrub	6	Low
5) Rosemary *Rosmarinus officinalis*	Shrub	6	Moderate
6) Feathery Senna *Senna artemisioides*	Shrub	6	Low
7) Palo Verde *Parkinsonia hybrid*	Tree	6	Low
8) Desert Broom *Baccharis sarothroides*	Shrub	6	Low

Water Use Category	Abbreviation	% of ETo
High	H	70-90
Moderate	M	40-60
Low	L	10-30
Very Low	VL	Less than 10

Findings to Date Include:

- Properly functioning irrigation systems can significantly reduce water waste. Systems with matched heads, proper spacing, proper pressure, and unclogged heads can significantly reduce landscape water waste.
- Distribution uniformity can most often be increased without major redesign and installation efforts by switching to rotary sprinkler heads.
- Properly irrigating plants based on species, density, and climate and microclimate considerations can significantly reduce landscape water waste
- Landscapes consisting solely of cool season turfgrass (not deemed recreational and therefore non-exempt from the regulation) use water in excess of the .7 ETAF standard.
- Landscapes consisting solely of warm season turfgrass (not deemed recreational and therefore non-exempt from the regulation) often exceed .7 ETAF due to poor irrigation uniformity.
- Landscapes consisting of a mixture of mostly medium, low and very low water using plant species that are drip irrigated and mulched can include small areas of turfgrass and not exceed .7 ETAF, When a greater balance of low water using plants is included, ETAF of.55 is achieved.
- A 3 inch layer of mulch around ornamental plantings can significantly reduce water waste by reducing water evaporation from soil.

Water Use Classifications of Landscape Species (WUCOLS) Key Points

WUCOLS is a list of 3,546 taxa that categorizes plants into very low, low, medium, and high water using categories based on the observations and opinions of professionals in the field. WUCOLS is a **<u>guide</u>** rather than an end-all. ETo zones, microclimates and densities of landscaped areas influence water use of plantings, as well. Since research results indicate that many species perform well below their actual ET rate, WUCOLS represents a 'user-friendly' method linking the actual water requirements of a wide array of plant species with acceptable performance.

WUCOLS evaluations were made in the same 6 climatic regions used for the ETAF study. Plant water use designation was based on the collective field experience and observations of evaluators. Although limited, available field research was included as well. Plant water use assignments were made by consensus agreement of the evaluators. If a committee did not know a plant, it was not evaluated. If the plant was not appropriate for a region, it was so noted.

<u>WUCOLS IV Website (http://ucanr.edu/sites/wucols/)</u>
If you are using WUCOLS list for the first time, please refer to the *User Manual*. The manual includes information regarding the evaluation process, categories of water needs, plant types, and climatic regions.